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Proceedings of the Annual Atlantic Salmon Stock Assessment Meeting
Regional Advisory Process
For The Maritimes and Gulf Fisheries Management Regions

December 13 – 15, 1999
Gulf Fisheries Centre, Miramichi Room, Moncton

J. Ritter, Chairperson
Department of Fisheries and Oceans
Science Branch, Maritimes Region
Gulf Fisheries Centre
343 Université Avenue
Moncton, N.B.
E1C 9B6
Canada

June, 2000

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Abstract

A peer review of the Maritime Atlantic salmon stock assessments was conducted at the Gulf Fisheries Centre, Moncton, December 13-15, 1999. The remit was to review the status of Maritime salmon stocks, provide a forecast of returns in 2000 and the immediate years beyond, and provide management advice on the different stocks.

Eleven working papers were reviewed and formed the basis of the stock status report for Maritime Atlantic salmon. Thirty-seven individuals from DFO, provincial agencies, First Nations, conservation organizations and a public utility participated in the review.

Résumé

Les évaluations des stocks de saumon atlantique des provinces Maritimes ont fait l'objet d'un examen par les pairs au Centre des pêches du Golfe, à Moncton, du 13 au 15 décembre 1999. Le renvoi devant les pairs avait pour objet d'examiner l'état des stocks de saumon des Maritimes, de prévoir les remontes en 2000 et dans les quelques années subséquentes, et de formuler des conseils sur la gestion de ces différents stocks.

Onze documents de travail, qui constituaient la base des rapports sur l'état des stocks de saumon atlantique des provinces Maritimes, ont été examinés. Trente-sept personnes provenant du MPO, d'organismes provinciaux, des Premières nations, d'organismes de conservation et d'un service public participaient à cet examen.

Introduction

A peer review of Maritime Atlantic salmon stock assessment was conducted in the Miramichi Boardroom of the Gulf Fisheries Centre in Moncton on 13-15 December 1999. The remit for the review was:

- to review the status of Maritime salmon stocks in 1999;
- to provide a forecast of returns in 2000 and the immediate years beyond; and
- to provide management advice on the individual stocks or grouping of them.

The Chairperson, John Ritter, welcomed the participants (Appendix 1) and the agenda (Appendix 3) was then reviewed.

The referees for working papers were:

- Rod Bradford, DFO, Dartmouth, NS
- Francois Caron, Faune et Parcs Quebec, Quebec City, Quebec
- Peter Cronin, NB Dept of Natural Resources and Energy, Kingsclear, NB
- Dave Meerburg, DFO, Ottawa
- Fred Whoriskey, Atlantic Salmon Federation, Saint Andrews, NB
- Doug Aitken, DFO, Bridgewater, NS
- Al McNeill, NS Dept of Fisheries and Aquaculture, Pictou, NS
- Trevor Goff, DFO, Mactaquac, NB

A list of the working papers presented at the meeting is given in Appendix 4. Research recommendations produced at the meeting are included with the write-ups on each of the groupings of stocks by Salmon Fishing Area (SFA) and are compiled in Appendix 5.

The Review

Environmental Conditions

Summary

1. Precipitation in winter was higher than normal, but lower than normal in April and May and resulted in early low flow conditions that persisted into early September.
2. Recorded freshwater temperatures during the summer of 1999 were the highest in recent years and were expected to be very stressful for salmon.
3. Environmental conditions and sea surface temperatures were milder and warmer than normal during 1998 and 1999.
4. 1999 ice coverage off Newfoundland and southern Labrador, the Gulf of St. Lawrence and seaward off the Cabot Strait was among the lowest in recorded years.
5. Marine Habitat index was high in 1999 but now explains less variability than previously in the recruitment model.
6. There has been a general continuance of warmer sea surface layer waters since 1995 in the areas frequented by Atlantic salmon.

Issues

1. Will fall rains recharge the water table or will it be depressed? Sufficient rainfall in the autumn should recharge the water table. Excessive years of low flow may require more than one season of rainfall to recharge the table, however, 1999 precipitation should be adequate.
2. What fraction of mean precipitation given in paper is due to Hurricane Floyd? In the areas hardest hit by the storm, a significant amount (but less than 50% of the total) of total precipitation was the result of the hurricane.
3. Is warm water species composition changing in response to increasing marine water temperature? The Sydney workshop in 1997 indicated that cold temperatures in early 1990s showed changes in species composition. Warm water species like mackerel decreased, Arctic cod moved south, capelin spawned later and moved further south. Should note if changes to this trend have been recorded since 1997 workshop. Should expand to include all species abundance.
4. No note of actual temperatures were given in the WP, only references to anomalies. Should a graph be presented to indicate the absolute temperatures? Physical oceanographers refer to temperatures as anomalies. Should remain consistent since using their data.
5. Shifts of less than a half-degree would not look outstanding on a graph. Consideration should be given to the use of actual temperatures in future assessments.

Research Recommendations

1. Deficiencies in water and air temperature data should be investigated to identify future sampling locations.

2. Ecosystem changes in response to changes in temperature and species numbers should be examined for its implications to salmon.

The Fishery

Summary

1. Atlantic salmon were harvested by two user groups in 1999: Aboriginal peoples and recreational fisheries.
2. The persistent failure of stocks in some areas of the Maritimes to achieve conservation requirements resulted in the progressive closures of Atlantic salmon in-river fisheries.
3. Reported harvests of small and large salmon in aboriginal fisheries in 1999 increased in the Gulf New Brunswick rivers. In Gulf of St. Lawrence Nova Scotia, aboriginal harvests in 1999 decreased compared to previous years.
4. Removals of small and large salmon in the recreational fisheries were down (from the previous five year mean) 30% in the Restigouche River and 60% and 40% respectively in the Miramichi River.

Chaleur Bay (SFA 15)

Summary

1. Matapédia River returns of large and small salmon (2600 and 1600) were higher than 1998 but below returns of large salmon in 1996 and 1995. Spawning escapement was estimated to have exceeded the conservation requirement.
2. Restigouche River (NB portion) catch rates were about 0.25 in recent years. Large and small salmon return estimates were 4500 and 6000. Spawning escapement was the lowest since 1985 and represents less than 50% of the requirement.
3. Jacquet River estimates for 1999 were not available due to an autumn fence washout. Counts to date were 135 small and 129 large salmon.
4. The Nepisiquit River achieved conservation requirements based on an estimate of 1600 large salmon.

Issues

1. Further efforts should be made to obtain data from the native food fishery.
2. Miramichi River has had warm water in 1999. Has the Restigouche River shown a similar trend and if so are there any concerns for furunculosis? Warm water episodes can lead to furunculosis outbreaks where present, however there were no reports of furunculosis suspected fish mortalities on the Restigouche River in 1999.
3. What are conservation requirements for Jacquet River? 571 Salmon. The fence washed out in mid September, which is early relative to that run.

4. Is there a plan for the Restigouche River to resolve the dilemma of juvenile assessment? Are the densities related to discharge levels and are the angling levels functional of the discharge levels? We are carrying indexes forward. Fry densities have tripled since the 1970s. Looks like fewer fish spawned in 1970s based on fry levels. We apply this to adult numbers with juvenile densities today.
5. Is 2.4 adequate for conservation requirements since the Quebec side of the Matapédia River uses 1.68? Further consideration should be given to this system so that the level can be best established.

Research Recommendation

1. Current methods to assess returns to the Restigouche River are not adequate. Operational methodologies for fence operations redd counts, etc. need to be fine-tuned to give better data.

Miramichi and Southeast Gulf New Brunswick (SFA 16)

Summary

1. The estimated return of 13,600 large salmon to the Miramichi River in 1999 was among the lowest on record.
2. Small salmon returns to the Miramichi River in 1999 (19,700 – 27,300) were down 30% from 1998 and were similar to the low returns of 1997. However, the early-run was higher than in previous years.
3. Returns to the Tabusintac River in 1999 were estimated at 817 small and 900 large salmon consistent with past periodic assessments.
4. The small salmon returns to the Buctouche River in 1999 were the second highest since 1993. The proporton of 2SW salmon in the large salmon returns rebounded to 79% from 33% in 1998.
5. Egg depositions by all salmon returning to the Miramichi River would have equaled 76% of the conservation requirement with 55% in the SW Miramichi and 128% for the Northwest Miramichi.
6. The conservation requirement for the Tabusintac River has been exceeded in the five years the stock was assessed between 1993 and 1999.
7. Egg deposition in the Buctouche River was estimated at 102% of the conservation requirement, the first time that the requirement has been achieved in seven years.
8. Juvenile abundance in four other southeastern NB rivers (Cocagne, Richibucto, Coal Branch and Kouchibouguac) were low and suggested that spawning success in recent years has been generally low.

Issues

1. The 1999 in-season forecast was inaccurate due to a low fall run. It was suggested to review forecast methods used on the Pacific Northwest and if appropriate apply to SFA 16 in the future to alleviate in-season forecast inaccuracies.

2. The catch data received from anglers' cards is incomplete. Is there any way to expedite the receipt of the anglers' cards and to encourage anglers to send them in? Cards are received by NBDNRE and are sent to DFO for data entry as they are received. The response rates from anglers are low but are ahead of previous year's mail out form. Want to affix report card to license rather than to the tags so that it is more up-front to the angler. NBDNRE will advertise in next few weeks to increase response rate from 1999 anglers. About 1000 returns to date but 30000 license were issued. Non resident licensees are much better at returning the report cards.
3. There were unsubstantiated rumours that salmon were being sold on the Tabusintac River. There is concern that the 1999 Marshall decision may result in increased harvest in the systems, which would be legal, based on the decision.
4. Assessments on the Miramichi are partially compounded by trap locations in the river. It was recommended to give consideration to moving one of the upriver traps and to give serious consideration to relocate one of the upper trap nets. Should build assessment based on Burnt Church trap for 1999.
5. The Buctouche River does not seem to be a good indicator for SW stocks. Why use it in future? It is accessible. Appears to be typical of most of the rivers in the area. Plan is to continue sampling the other rivers to check their status. Will expand next year. Can't transfer conservation requirements to other rivers with any degree of certainty based on Buctouche data. Most of the rivers aren't meeting conservation items most of the time based on the Buctouche. Have to rely in future on electrofishing results since recapture methods may not continue from lack of money.
6. There are concerns that the current models for the SW Miramichi may not capture all the fish that are there. Should perhaps look at using a model other than Schaeffer to give estimates.

Research Recommendations

1. Juvenile escapements on all systems in SFA 16 should be examined to get a sense of their status. Should also determine if the rivers should be looked at individually or as a group.
2. Smolt estimates for the SW Miramichi should be worked on.
3. Examine all the available data for the Miramichi in an intense method to see where and why changes in returns may be occurring. There are good juvenile densities, but the fish are smaller sized. Should look at how this will affect smolts and recruits.
4. Should the Miramichi River be managed as a whole or by branch? There may not be enough data to support a separate management of the SW where the stocks aren't as high. Should examine the feasibility of this since the Marshall decision may result in increased removals and these may occur in areas that are unable to support this.

Prince Edward Island (SFA 17)

Summary

1. Conservation requirements were not met for the Morell River in 1999. Most returning fish (87%) were of hatchery origin.
2. Salmon returns for rivers other than the Morell are far below conservation requirements.

3. Much of the juvenile production in the Valleyfield River in 1999 was destroyed in a pesticide-induced fish kill.

Research Recommendation

1. Fisheries should retain only adipose clipped (stocked) salmon in an attempt to preserve wild stocks on PEI rivers.

Northumberland Strait Nova Scotia (Part of SFA 18)

Summary

1. The estimated return of salmon to River Philip in 1999 was 538 large salmon and 326 small fish. The escapement of large fish in 1999 met the conservation requirements and increased relative to 1998.
2. Returns to East River Pictou exceeded conservation requirements.
3. West River (Antigonish) salmon returns have exceeded or approximately met the conservation requirements for the fourth consecutive year.
4. Returns and escapements to Sutherlands River and West River Pictou met conservation requirements however, they were not met in the Wallace and Waugh rivers, nor in the River John.
5. Fry and parr densities in most rivers of this area are at or above the Elson norm except the Wallace River, which has been consistently below other rivers, and the Elson norm.

Issues

1. There is concern that the native-run trap may be selective in sampling. This should be investigated in future years.
2. A native food fishery occurs in this area and not all data are available from this. Try to get biological data from this fishery to combine with other data.

Cape Breton (SFA 19 and part of SFA 18)

Summary

1. Small salmon returns to the Margaree River were similar to those of the last four of five years. Large salmon were down 30% from 1998.
2. Hatchery returns to the Margaree River may have comprised 5-10% of the run.
3. Conservation requirements on the Margaree River have been exceeded every year since 1985.
4. Returns to Middle River were estimated at 450 fish with estimates of large salmon returns and escapement rising above the mid 1990s level.

5. Small salmon escapement on the Middle River was about 105% of conservation requirement and large salmon were about 75% of requirement.
6. It is unlikely that the egg conservation requirement was achieved on the Baddeck River.
7. Escapements in 1999 may have met the egg requirement for the North River (based on a comparison of angling and diver count data).
8. Total returns and escapement of hatchery salmon to the Grand River in 1999 numbered one-half that in 1998; wild returns and escapement were similar.
9. Escapement above the fishway in Grand River was 47% of the fish requirement, the second lowest in a 12 year data set.
10. Most stocks of SFA 18, Gulf Cape Breton, may be meeting or exceeding egg conservation requirements.
11. The Sky River of Bras d'Or Lakes has not been meeting the egg conservation requirement.
12. Atlantic coast rivers are unlikely to be meeting egg conservation requirements.

Issue

1. Should the historical perspective of juvenile densities be included where it exists? Next year's report should include a perspective on juvenile densities in Middle River.

Eastern and Southern Shores of Nova Scotia (SFAs 20 and 21)

Summary

1. Estimated escapement to the West River St. Mary's in 1999 was around 390 fish.
2. Based on sampled habitat, the total escapement to St. Mary's River in 1999 was estimated to be only 22% of fish conservation requirement and 30% of the egg requirement.
3. Counts on the LaHave River were 48% of the fish requirement and 68% of the egg conservation requirement in 1999. This was the seventh consecutive year that egg deposition above Morgan Falls has been less than the conservation requirement.
4. The return rate of hatchery smolts to the LaHave River as 1SW fish in 1999 decreased to 0.3% from 0.9% in 1998, the lowest in a time series. Returns of 2SW hatchery salmon remained below 2%.
5. Returns to the Liscomb River numbered 25 fish in 1999. Wild salmon have almost disappeared and survival of hatchery-origin salmon has declined severely.
6. Hatchery supplementation as a mitigation technique for acidification appears to be less effective in these acid impacted rivers than when the programs originally began.

Issues

1. Survival rates have increased in the St. Mary's River in the last 4 to 5 years. In a time that we are quick to blame marine survival, this river might serve to remind us to continue to examine the fresh water component for its carrying capacity. The survival issue still seems to be two-sided, with both the fresh and salt-water phases playing an important role.

2. Stocking strategies of hatchery fish on the LaHave River have changed in the last few years. As a result, it seems inappropriate to state that hatchery stocking has yielded fewer returns as of late. We should look at hatchery stocking techniques and determine if one release location may be more conducive to fish moving upstream through the system.
3. Other acid-impacted rivers are not reflecting a significant return of hatchery fish stocked through mitigation efforts. Perhaps these fish are no longer a viable enhancement technique.

Research Recommendations

1. Examine the use of hatchery stocking to determine if it is still significantly contributing as a mitigation technique in acid-impacted rivers. We should also examine the stocking technique in rivers like the LaHave to determine if we are using the best method.
2. Juvenile data from all systems should be analyzed for changes in parr size.

Inner Bay of Fundy (SFA 22 and part of SFA 23)

Issues

1. Electrofishing for juvenile salmon in the Stewiacke River in 1999 indicated a continued decline of juvenile salmon. Locations void of 0+ parr increased form 0% in 1984 to 79% in 1999.
2. Electrofishing on the big Salmon River indicated that parr densities have declined in this river since 1998.
3. Electrofishing in six other rivers (Maccan, Portapique, Economy, Great Village, Folly and North) indicates that there were few salmon of any age in 1999.
4. The Gaspereau had a total of 41 salmon returns, only 24% of the required spawning escapement. Egg deposition was 15% of the conservation requirement.

Research Recommendation

1. Special measures are required to prevent extirpation of inner Bay of Fundy salmon. An action plan is urgently required.

Outer Bay of Fundy (western part of SFA 23)

Summary

Saint John River at Mactaquac

1. The total count of salmon in the Saint John River at Mactaquac dam in 1999 was 5003 salmon. Estimated returns were 3257 1SW (86% hatchery origin) and 1804 MSW (54% hatchery origin).

2. Wild 1SW returns were the third lowest of a 30-year record; wild MSW returns were 2.5 times as numerous as in 1998 but are the second lowest in a 30-year record.
3. Only 31% of the egg conservation requirement was met with hatchery-origin fish providing 59% of the total. This is the sixth lowest value in 30 years.
4. Mean densities of wild parr at 15 sites upriver of Mactaquac are among the lowest estimated since 1993.

Nashwaak River

1. Returns of 1SW salmon were the third lowest since 1993, and one-half the 1SW returns of 1998.
2. MSW returns were the lowest on record and have been declining since 1996.
3. Only 19% of the conservation requirement was met in 1999 and less than 50% of conservation requirements have been achieved since 1993.
4. Smolts emigrating upstream of the fence increased by 25% over those in 1998.

Hammond River

1. An assessment was not completed in 1999. An assessment of returns in 1998 indicated that about 30% of the conservation requirement was met.
2. A redd count in 1999 was double that of 1998 and 134% of the previous 5 year mean.
3. Fry densities increased by twice of that of 1998 while parr densities were only 41% of those in 1998.

Maguguadavic River

1. Counts to the St. George fishway in 1999 numbered only 19 1SW and 5MSW, the fewest on record.
2. Four aquaculture escapees tested positive for ISA.

St. Croix River

1. Counts at the Milltown fishway in 1999, numbered 5 wild and hatchery MSW fish, 8 wild and hatchery 1SW fish and 11 farmed MSW and 12 farmed 1SW fish. Hatchery origin fish comprised 31% of the St. Croix returns.
2. All 13 hatchery and wild salmon were held for broodstock, thus no salmon spawning occurred above the Milltown Dam.

Issues

1. Fallback seems to be a problem that may occur at Mactaquac Dam. What effect might this have on the final numbers of salmon returning to the dam? No final number is available but the observed fallback does suggest that 1SW return rates may be lower than indicated.

Research Recommendations

1. Should look at establishing better upstream and downstream fish passage on the Saint John River.
2. Examine the interactions between wild and aquaculture escapee salmon to see what effect this may have on populations and the environment.

ALL SFAs

Research

All future assessments, where available, should include:

1. Trends in repeat spawners;
2. Trends in parr size by age class.

Changes in these biological characteristics should be discussed relative to them causing or buffering population fluctuations.

Participant	Affiliation/Address	Telephone	Fax	e-mail`
Aitken, Doug	DFO, Dartmouth	902 426-2954	902 426-6814	Aitkend@mar.dfo-mpo.gc.ca
Amiro, Peter	DFO, Dartmouth	902 426-8104	902 426-6814	Amirop@mar.dfo-mpo.gc.ca
Anderson, Leroy	DFO, Mactaquac	506 363-3126	506 363-4566	Andersonla@dfo-mpo.gc.ca
Atkinson, Gary	DFO, Moncton	506 851-2732	506 851-2147	AtkinsonG@dfo-mpo.gc.ca
Augustine, Frank	Big Cove First Nations	506 523-6395		
Boulerice, Martin	DFO, Moncton	506 851-2616	506 852-2147	Boulericem@dfo-mpo.gc.ca
Bradford, Rod	DFO, Dartmouth	902 426 4555	902 426-6814	Bradfordr@mar.dfo-mpo.gc.ca
Cairns Dave	DFO, P.E.I.	902 566-7825	902-566-7948	Cairnsd@dfo-mpo.gc.ca
Cameron, Paul	DFO, Dalhousie, N.B.	506 684-6258	506 851-6259	Cameronp@dfo-mpo.gc.ca
Caron, Francois	Faune at Parcs, Quebec/ Quebec	418 521-3940	418 646-6863	Francois.caron@mef.gouv.qc.ca
Cassie, Daniel	DFO, Moncton	506-851-6287	506 851-2147	Cassied@dfo-mpo.gc.ca
Chaput, Gerald	DFO, Moncton	506 851-2022	506 851-2147	Chaputg@dfo-mpo.gc.ca
Cronin, Peter	NBDNRE, Fredericton	506 453-2440	506 453-6699	Pcronin@gov.nb.ca
Douglas, Scott	Burnt Church First Nation (Contractor)	506 851-2616	506 851-2147	Douglass@dfo-mpo.gc.ca
Dubee, Bernie	NBDNRE/ Miramichi	506 627-7049	506 627-4224	Bldubee@gov.nb.ca
Francis, Harvey	Big Cove First Nations	506 523-4191		Mrhf@nbnet.nb.ca
Freeman, Bryant	New Brunswick Salmon Council	506 386-6269	506 386-7399	Freemanb@attcanada.nat
Goff, Trevor	DFO, Mactaquac	506 363-3136	506 363-4566	Gofft@dfo-mpo.gc.ca
Hambrook, Mark	Miramichi Fisheries Management	506 622-1781	506 622-6111	Hambrook@nbnet.nb.ca
Hayward, John	DFO, Miramichi	506 778-2837		Haywardj@dfo-mpo.gc.ca
Jamieson, Lee	Nova Scotia Power Inc.	902 428-6252	902 428-6101	Lee.jamieson@nspower.ca
Jones, Ross	DFO, S.W.N.B.	506 851-6441	506 851 2147	Jonesr@dfo-mpo.gc.ca
Mallory, John	DFO, Nashwaak River	506 452-3791		
Marshall, Larry	DFO, Dartmouth	902 426-3605	902 426-6814	Marshalll@mar.dfo-mpo.gc.ca
McNeill, Alan	Nova Scotia Dept. Fisheries and Aquaculture	902 485-7024	902 485-4014	Mcneilla@gov.ns.ca
Mead, Ken	Nova Scotia Power Inc.	902 428-6582	902 428-6101	Ken.meade@nspower.ca
Meerburg, Dave	DFO, Ottawa	613 990-0286	613 954-0807	Meerburd@dfo-mpo.gc.ca
Moore, Dave	DFO, Moncton	506 851-6873	506 851-2147	Moored@dfo-mpo.gc.ca

Participant	Affiliation/Address	Telephone	Fax	e-mail`
O'Neil, Shane	DFO, Dartmouth	902 426-1579	902 426-6814	Oneils@mar.dfo-mpo.gc.ca
Pettigrew, Tom	NBDNRE, Hampton	506 832-6055	506 832-6029	Tpettigrew@gov.nb.ca
Picard, Russell	DFO, Moncton	506 851-2059	506 851-2147	Pickardr@dfo-mpo.gc.ca
Ratelle, Stephanie	DFO, Mactaquac	506 363-3136	506 363-4566	Sratelle@hotmail.com
Ritter, John	Chair, DFO Dartmouth	902 426-3136	902 426-6814	Ritterj@mar.dfo-mpo.gc.ca
Ross, Grant	Miramichi Salmon Association	506-369-2223	506-369-7406	rossgmsa@nbnet.nb.ca
Sutherland, Danielle	DFO, Mactaquac	506 363-3126	506 363-4566	Sutherlandd@dfo-mpo.gc.ca
Wheaton, Fred	New Brunswick Wildlife Federation, Moncton	506 857-4231	506 857-2213	
Whoriskey, Fred	Atlantic Salmon Federation, St Andrews	506 529-1039	506 529-4985	Asfres@nbnet.nb.ca

Invitation Letter

Science Branch
Gulf Fisheries Management Region
343 Université Avenue
Moncton, N.B.
E1C 9B6

November 30, 1999

«Title» «FirstName» «LastName»
«JobTitle»
«Company»
«Address1»
«Address2»
«City», «State»
«Postal_Code»

Dear «Title» «LastName»:

This letter is to invite you to a special scientific peer review session for the Atlantic salmon stocks of the Maritime Provinces. A description of the session and a draft agenda are attached.

The session will take place **December 13-15, 1999, in the Miramichi Room (6th Floor)** of the Gulf Fisheries Centre, 343 Université Avenue, Moncton, N. B. It will commence at **10:30 a.m.** on **Monday, the 13th.**

You and/or representatives of your organization are welcome to come and participate in the discussion of those agenda items in which you have interest. We hope your interests will be represented. However, we are unable to assist with travel expenses.

Sincerely yours,

J. A. Ritter, Manager
Diadromous Fish Division

Attachment

Direction des sciences
Région de gestion des pêches du Golfe
343, avenue Université
Moncton (N.-B.)
E1C 9B6

le 30 novembre 1999

Monsieur,

Nous voulons par la présente vous inviter à une séance spéciale de l'examen par les pairs des stocks de saumon atlantique des provinces Maritimes. Vous trouverez sous ce pli une description de la séance et un projet d'ordre du jour.

La séance aura lieu du **13 au 15 décembre 1999, dans la salle Miramichi (6^{e} étage)** du Centre des pêches du golfe, au 343, avenue Université, à Moncton (N.-B.). Le tout débutera à **10 h 30** le **lundi 13 décembre.**

Vous-même ainsi que des représentants de votre organisation êtes invités à participer à la discussion pour les points à l'ordre du jour qui vous intéressent. Nous espérons que vos intérêts seront représentés, mais nous ne pouvons malheureusement pas assumer vos frais de déplacement.

Veuillez agréer, Monsieur, l'expression de nos sentiments les meilleurs.

Le directeur,
Division du poisson diadrome,

John A. Ritter

Pièces jointes

Letter to Referees

Science Branch
Diadromous Fish Division
343 Université Avenue
Moncton, N.B. E1C 9B6

November 24, 1999

«Title» «FirstName» «LastName»
«JobTitle»
«Company»
«Address1»
«Address2»
«City», «State»
«PostalCode»

Dear «Title» «LastName»:

This letter is to confirm my invitation to you to serve as a referee at the Diadromous Fish Stock Peer Review to be held **December 13-17, 1999**. The review will take place in the Miramichi Room (6th Floor, Room 544) of the Gulf Fisheries Centre, 343 Université Avenue, Moncton, N.B. It will **commence at 10:30 p.m. on Monday, the 13th**.

The paper(s) that we are asking you to review will be forwarded to you as early as possible before the meeting. Also included for your information and guidance, are copies of both the Agenda for the Peer Review and some suggested "Considerations for Referees". You are welcome to participate in all or any of the review sessions. You will note from the Agenda that this Peer Review extends through to Thursday noon and encompasses all the salmon stocks for the Maritime Provinces.

We are pleased to reinburse you for your accommodations and food costs.

We look forward to working with you to ensure a thorough review of our Atlantic salmon stock assessments.

Sincerely,

John A. Ritter, Manager
Diadromous Fish Division

Attachment

Notes of Guidance for Referees

CONSIDERATIONS FOR REFEREES

Please review the document and provide comments (at the peer review) on the methodology, interpretations and recommendations. You will be expected to provide an oral review of the paper assigned to you along with written comments and/or edits to the senior author. Also, we are hoping that you will agree to provide a final review of the same manuscript prior to its publication.

Points to consider in your review include:

1. Is the purpose of the working paper clearly stated?

2. Are the data used in the analysis appropriate. If not, what are the shortcomings and what additional data should be collected?

3. Is the method of analysis appropriate? If not, what method do you recommend, and why? Is the analytic method(s) properly explained and is enough information provided so you can evaluate the author's conclusions?

4. Are the conclusions valid? Are there competing conclusions or hypotheses that should be considered?

5. Is the advice provided in a form useful to a fisheries manager? Does the form of the advice reflect the uncertainty in the data, analysis or description of the process?

6. Can you suggest additional work that you feel would be worth doing that might improve our ability to assess this stock?

Date: December 13 – 16, 1999

Place: Gulf Fisheries Centre, Miramichi Room, Moncton

Venue:

- Purpose of the meeting will be to provide scientific advice on the status of the Atlantic salmon stocks of the Maritime Provinces.
- The Review of salmon stock status will extend from 10:30 a.m. on Monday, December 13th, through to no later than noon on Wednesday, December 15th will be aiming to complete earlier, i.e., Tuesday, 5:00 p.m.).
- A total of 12 Working Papers (WP) will be reviewed. These will be distributed to referees in advance of the meeting and available at the meeting itself to all participants.
- The format of the review will differ from previous years in that there will be no presentation of the individual papers. The process will consist of a discussion of the substantive review comments from both the referees and other participants and a sentence-by-sentence review of the draft text of the Stock Status Report. Referees will be expected to provide detailed written comments to the authors of the individual Working Papers.
- The order of review will generally follow the format of the Stock Status Report beginning with an overview of the fisheries, followed by a general review of environmental conditions (freshwater and marine) and than a review of stocks by Salmon Fishing Area (SFA) beginning with Chaleur Bay stocks (i.e., SFA 15).
- One Stock Status Report will be produced for all Maritime salmon stocks. A Proceeding document will also be prepared to provide a record of the meeting.

AGENDA

Time	Working Papers (WP) and "Sections of Stock Status Report"	Lead Author(s) Of Working Papers	Referee for Working Papers	Lead Author(s) of Stock Status Report
Monday to Wednesday Noon, December 13th to 15th				
10:30-11:00	Introductory Remarks	John Ritter	N/A	N/A
11:00-	"Background"	N/A	N/A	John Ritter
	"Summary"	N/A	N/A	John Ritter
	"The Fishery"	N/A	N/A	Gérald Chaput
	"Environmental Conditions" ➢ Freshwater WP ➢ Marine WP	Daniel Caissie Larry Marshall & Peter Amiro	Rod Bradford N/A	Daniel Caissie, Larry Marshall & Peter Amiro
	"SFA 15" ➢ Restigouche WP ➢ Jacquet & Nepisiquit WP	Gérald Chaput Paul Cameron	Peter Cronin Francois Caron	Gérald Chaput
	"SFA 16" ➢ Tabusintac WP ➢ Miramichi WP ➢ Boutouche & Richibucto WP	Scott Douglas Gérald Chaput Gary Atkinson	Rod Bradford Dave Meerburg Fred Whoriskey	Gérald Chaput
	"SFA 17" ➢ PEI WP	David Cairns	Doug Aitken	David Cairns
	"(part of) SFA 18" ➢ Northern Nova Scotia WP	Shane O'Neil	Al McNeill	Shane O'Neil
	"(part of) SFA 18 and SFA 19" ➢ Cape Breton WP	Larry Marshall	Trevor Goff	Larry Marshall
	"SFAs 20 & 21" ➢ Atlantic Coast of Nova Scotia WP	Peter Amiro	Fred Whoriskey	Peter Amiro
	"SFA 22 and (eastern part of) SFA 23" ➢ Inner Bay of Fundy (update only)	Peter Amiro	Not required	Peter Amiro
	"(western part of) SFA 23" ➢ Saint John and southwest New Brunswick WP	Larry Marshall	Peter Cronin	Larry Marshall

RÉUNION ANNUELLE D'ÉVALUATION DES STOCKS DE SAUMON ATLANTIQUE POUR LES PROVINCES MARITIMES

Date : Du 13 au 15 décembre 1999

Lieu : Centre des pêches du Golfe, salle Miramichi, Moncton

Objet :

- La réunion aura pour objet de fournir des avis scientifiques sur l'état des stocks de saumon atlantique dans les provinces Maritimes.
- L'examen des rapports sur l'état des stocks de saumon débutera à 10 h 30 le lundi 13 décembre et se terminera au plus tard à midi le mercredi 15 décembre. (Nous essayerons de terminer plus tôt, soit le mardi à 17 h).
- En tout, 12 documents de travail (DT) seront examinés. Ces derniers seront distribués aux examinateurs avant la réunion et il seront distribués également à toutes les personnes présentes à la réunion.
- Le déroulement de l'activité sera quelque peu différent par rapport aux années passées, en ce sens qu'il n'y aura pas de présentation des articles individuels. On commencera plutôt par une discussion des commentaires de fond provenant à la fois des examinateurs et d'autres participants, et le tout sera suivi d'un examen, phrase par phrase, de l'ébauche du Rapport sur l'état des stocks. Les examinateurs seront tenus de fournir des observations écrites et détaillées aux auteurs des documents de travail respectifs.
- En général, l'examen suivra l'ordre établi dans le Rapport sur l'état des stocks. On tracera les grandes lignes des pêches, suivi d'un examen général des conditions environnementales (eaux douces et eaux de mer) puis d'un examen des stocks de chacune des zones de pêche du saumon (ZPS) en commençant par les stocks de la baie des Chaleurs (p. ex. la ZPS 15).
- Un seul Rapport sur l'état des stocks sera produit pour tous les stocks de saumon des Maritimes.
- On préparera également un compte rendu de la réunion d'évaluation.

ORDRE DU JOUR

Heure	Documents de travail (DT) et sections des rapports sur l'état des stocks	Principal(aux) auteur(s) des documents de travail	Examinateur des documents de travail	Principal(aux) auteur(s) des rapports sur l'état des stocks
Du lundi 13 décembre au mercredi 15 décembre à midi				
10 h 30 –11 h	Allocution d'ouverture	John Ritter	n.d.	n.d.
11 h	Renseignements de base	n.d.	n.d.	John Ritter
	Sommaire	n.d.	n.d.	John Ritter
	La pêche	n.d.	n.d.	Gérald Chaput
	Conditions environnementales ➢ DT – eaux douces ➢ DT – eaux de mer	Daniel Caissie Larry Marshall et Peter Amiro	À déterminer n.d.	Daniel Caissie, Larry Marshall et Peter Amiro
	ZPS 15 ➢ DT – Ristigouche ➢ DT – Jacquet et Nepisiguit	Gérald Chaput Paul Cameron	À déterminer À déterminer	Gérald Chaput
	ZPS 16 ➢ DT – Tabusintac ➢ DT – Miramichi ➢ DT - Boutouche et Richibucto	Scott Douglas Gérald Chaput Gary Atkinson	À déterminer À déterminer À déterminer	Gérald Chaput
	ZPS 17 ➢ DT – Î.-P.-É.	David Cairns	À déterminer	David Cairns
	Une partie de la ZPS 18 ➢ DT – nord de la N.-É.	Shane O'Neil	À déterminer	Shane O'Neil
	Une partie de la ZPS 18 et ZPS 19 ➢ DT – Cap-Breton	Larry Marshall	À déterminer	Larry Marshall
	ZPS 20 et 21 ➢ DT – côte de la N.-É. attenante à l'Atlantique	Peter Amiro	À déterminer	Peter Amiro
	ZPS 22 et (partie est de la ZPS 23 ➢ Partie intérieure de la baie of Fundy (mise à jour seulement)	Peter Amiro	Non nécessaire	Peter Amiro
	Partie ouest de la ZPS 23 ➢ DT – rivière Saint-Jean et partie ouest du Nouveau-Brunswick	Larry Marshall	À déterminer	Larry Marshall

PAPERS

RAP Meeting
December 13-15, 1999

Authors	Working Papers	Res. Doc #'s
Amiro, P.G., D.A. Longard, and E.M. Jefferson. 2000.	Assessments of Atlantic salmon stocks of Salmon Fishing Areas 20 and 21, the southern Uplands of Nova Scotia, for 1999. Maritimes WP 99/97.	DFO Can. Stock Assess. Sec. Res. Doc. 2000/009.
Atkinson, G., J Peters, and V. LeBlanc. 2000.	Status of Atlantic salmon (*Salmo salar*) in the Buctouche River, and relative juvenile abundance in other southeastern New Brunswick rivers in 1999. Maritimes WP 99/94.	DFO Can. Stock Assess. Sec. Res. Doc. 2000/005.
Cairns, D.K., M. Murray, F. MacLean, and R. Angus. 2000.	An update on the status of Atlantic salmon on Prince Edward Island in 1999. Maritimes WP 99/95.	DFO Can. Stock Assess. Sec. Res. Doc. 2000/13.
Caissie, D. 2000.	Hydrological Conditions for Atlantic Salmon Rivers in 1999. Maritimes WP 99/88.	DFO Can. Stock Assess. Sec. Res. Doc. 2000/011.
Cameron, P., B. Baker, and G. Chaput. 2000.	Update of the stock status of Atlantic salmon (*Salmo salar*) in the Nepisiguit and Jacquet rivers, 1999 Maritimes WP 99/91.	DFO Can. Stock Assess. Sec. Res. Doc. 2000/002.
Chaput, G., D. Moore, J. Hayward, J. Shaesgreen, and B. Dubee. 2000.	Stock status of Atlantic salmon (*Salmo salar*) in the Miramichi River, 1999. Maritimes WP 99/93.	DFO Can. Stock Assess. Sec. Res. Doc. 2000/004.
Chaput, G., R. Pickard, M. Arseneault, J.P. le Bel, and P. D'Amours. 2000.	Stock status of Atlantic salmon (*Salmo salar*) in the Restigouche River, 1999. Maritimes WP 99/90.	DFO Can. Stock Assess. Sec. Res. Doc. 2000/001.
Douglas, S.G., D. Swasson. 2000.	Status of Atlantic salmon (*Salmo salar*) in the Tabusintac River in 1999. Maritimes WP 99/92.	DFO Can. Stock Assess. Sec. Res. Doc. 2000/003.
Marshall, T.L., R.A. Jones,	Assessments of Atlantic	DFO Can. Stock Assess. Sec.

and L. Anderson. 2000.	salmon stocks in southwest New Brunswick, 1999. Maritimes WP 99/99.	Res. Doc. 2000/010.
Marshall, T.L., P.H. LeBlanc, K.A. Rutherford, and R.A. Jones. 2000.	Assessments of Atlantic salmon stocks in selected rivers of Cape Breton Island, 1999. Maritimes WP 99/96.	DFO Can. Stock Assess. Sec. Res. Doc. 2000/008
O'Neil, S.F., K.A. Rutherford, and D. Aitken. 2000.	Atlantic salmon (*Salmo salar* L.) stock status on rivers in the Northumberland Strait, Nova Scotia area, in 1999. Maritimes WP 99/87.	DFO Can. Stock Assess. Sec. Res. Doc. 2000/007.

RESEARCH RECOMMENDATIONS

Environmental Conditions

1. Deficiencies in water and air temperature data should be investigated to identify future sampling locations.
2. Ecosystem changes in response to changes in temperature and species numbers should be examined for its implications to salmon.

Chaleur Bay

3. Current methods to assess returns to the Restigouche River are not adequate. Operational methodologies for fence operations redd counts, etc. need to be fine-tuned to give better data.

Miramichi and Southeast Gulf New Brunswick (SFA 16)

4. Juvenile escapements on all systems in SFA 16 should be examined to get a sense of their status. Should also determine if the rivers should be looked at individually or as a group.
5. Smolt estimates for the SW Miramichi should be worked on.
6. Examine all the available data for the Miramichi in an intense method to see where and why changes in returns may be occurring. There are good juvenile densities, but the fish are smaller sized. Should look at how this will affect smolts and recruits.
7. Should the Miramichi River be managed as a whole or by branch? There may not be enough data to support a separate management of the SW where the stocks aren't as high. Should examine the feasibility of this since the Marshall decision may result in increased removals and these may occur in areas that are unable to support this.

Prince Edward Island (SFA 17)

8. Fisheries should retain only adipose clipped (stocked) salmon in an attempt to preserve wild stocks on PEI rivers.

Eastern and Southern Shores of Nova Scotia (SFAs 20 and 21)

9. Examine the use of hatchery stocking to determine if it is still significantly contributing as a mitigation technique in acid-impacted rivers. We should also examine the stocking technique in rivers like the LaHave to determine if we are using the best method.
10. Juvenile data from all systems should be analyzed for changes in parr size.

Inner Bay of Fundy (SFA 22 and part of SFA 23)

11. Special measures are required to prevent extirpation of inner Bay of Fundy salmon. An action plan is urgently required.

Outer Bay of Fundy (western part of SFA 23) – St. Croix

12. Should look at establishing better upstream and downstream fish passage on the Saint John River.
13. Examine the interactions between wild and aquaculture escapee salmon to see what effect this may have on populations and the environment.

All SFAs

Research

14. All future assessments, where available, should include:

- Trends in repeat spawners;
- Trends in parr size by age class.

Changes in these biological characteristics should be discussed relative to them causing or buffering population fluctuations.